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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,010	02/19/2002	Stephen C. Vincent	P04860US1	6367

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MCKEE, VOORHEES & SEASE, P.L.C.
801 GRAND AVENUE
SUITE 3200
DES MOINES, IA 50309-2721

EXAMINER

EASTHOM, KARL D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 04/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/079,010

Applicant(s)

Vincent

Examiner

Karl Easthom

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Feb 25, 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-10 and 12-16 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-10 and 12-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 8 6) ☐ Other:

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

2. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al. or Holmes. Kobayashi discloses the claimed invention is disclosed at Fig. 1 with resistive layer 1, termination 4, passivation layer 5, substrate 1 or 2, and outer barrier 6. The substrate is either 1 or 2 and either way, the resistor is "directly attached". (This is consistent with applicant's use as evidenced by claim 14 - see further discussion below). Holmes discloses the claimed invention at cols. 3-4, lines 29-12, with a tantalum pentoxide outer moisture barrier layer over a nichrome resistor, with passivation layer the unoxidized tantalum.

3. Claims 7 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Szupillo. Szupillo discloses the claimed invention at Fig. 5 with thin film layer 20 and tantalum pentoxide layer 22 with the chip seen at Fig. 1 with terminations 10. For claim 12, sputtering is disclosed at col. 3, lines 20-50.

4. Claims 7 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Waggener. Waggener discloses the claimed invention at Figs. 7-9 with resistive layer 12 of niobium (see

claim 1 or col. 2, line 40), TaO film 16, and chip termination 13. In claim 16, the tantalum pentoxide layer 16 overlies passivation layer 15 at Fig. 6. See claim 4 of Waggener. Claim 4 of Waggener also meets claim 7 since “directly overlying and attached” is met because the layer 16 is directly over and attached by way of the intermediate passivation layer, where no contact is claimed. (This is consistent with applicant’s use as evidenced by claim 14 where the “directly overlying and attaching” of the barrier layer includes an intermediate layer). The sputtering process of claim 14 is disclosed at col. 3, where sputtering is disclosed in general, and thin films are disclosed. For chips, see Example II, where a plurality of resistors indicate the devices are chips by cutting substrates. For claim 12, sputtering is disclosed at col. 3, lines 1-8, so that all films are contemplated as sputtered. Or the process does not result in a product difference.

5. Claims 7-10, and 12-13 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Copetti et al. (US 2001/0017770). Copetti discloses the claimed invention at Fig. 1 with substrate 8, chip contacts 6, resistor 7 (nichrome at par. 63 meeting all claims), and outer moisture barrier layer 3 of tantalum pentoxide. See the comments above for “directly attached” limitations. The device is a chip since it is a module having chip type contacts and can be an SMD - a surface mounted device - see par. 65.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (APA Fig. 1) in view of Copetti et al. APA Fig. 1 admits of the claimed structure except the material of the outer barrier layer 16. Copetti discloses using a layer of tantalum pentoxide in a chip type module as a substitute dielectric layer for a wide variety of thin film materials, including nichrome resistors at pars. 60-63. It would have been obvious to replace the APA dielectric layer 16 having the admitted known materials of silicon nitride, silicon dioxide and admitted purpose as a barrier layer to protect the prior art resistor of nichrome, as admitted on page 4 of applicant's specification, where Copetti lists tantalum pentoxide as a replacement for the known silicon nitride and silicon dioxide dielectric layers for protection, and lists same as compatible with nichrome. For claim 12, Copetti discloses in general thin film techniques, such that it would have been obvious to use sputtering where same is a well known thin film technique in the resistor arts, the Examiner taking Official Notice thereof (citing Nishguchi et al. att col. 5, lines 1-2 as evidence thereof).

8. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (APA Fig. 1) in view of Copetti et al., as applied to claims above, further in view of Wienand et al. The claimed structure is as noted above except for the passivation layer. Wienand discloses passivation layers at Table 2 for use with a tantalum pentoxide outer layer at TABLE 2, and notes that same can be used in place of a single layer of tantalum pentoxide as noted at TABLE 1, in order to protect a resistor from its environment. It would have been obvious to replace a single layer with a double layer for the purpose of added protection since Wienand discloses interchanging double and single layers.

9. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (APA Fig. 1) in view of Kobayashi et al. The claimed structure is as noted above except for the outer barrier layer of tantalum pentoxide. Kobayashi discloses a passivation layer 5, with an outer barrier layer of tantalum pentoxide 6 in order to protect a nichrome resistor having a silicon oxide passivation layer, and thus having the same materials of the APA resistor, in order to protect a resistor from its environment. It would have been obvious to replace the single protection layer of the APA with a double layer for the purpose of added protection since applicant discloses protecting a nichrome resistor with silicon dioxide, and Kobayashi teaches placing tantalum oxide over such a combination for added protection.

10. Applicant's arguments with respect to the claims have been considered but are moot in of the new ground(s) of rejection or are persuasive only in part. For the "directly attaching" argument, see the remarks above. Basically a layer can be "directly attached" without having contact with the structure to which it is attached. Claim 15 has no chip limitation, while the other rejections not disclosing chips have been removed pursuant to applicant's argument.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl Easthom whose telephone number is (703)308-3306. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad, can be reached on (703)308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7722. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



KARL D. EASTHOM
PRIMARY EXAMINER